

What is claimed is:

1 1. A system of carrier transport traffic management,
2 comprising:
3 a fabrication tool;
4 a host computer, connected to the fabrication tool,
5 configured to acquire an available number of a
6 resource type for the fabrication tool upon detecting
7 a loadport of the fabrication tool is available; and
8 a material transport system, connected to the host
9 computer, configured to receive the available number
10 of the resource type corresponding to the fabrication
11 tool, acquire a carrier identity corresponding to a
12 carrier, acquire a required number of the resource
13 type corresponding to the carrier, and issue a load
14 command to an automated material handling system
15 (AMHS) to transport the carrier to the fabrication
16 tool if the available number of the resource type
17 exceeds or equals to the required number of the
18 resource type.

1 2. The system of claim 1 wherein the material transport
2 system further sends an advisory to an operator or an automated
3 dispatch system if the available number of the resource type is
4 less than the required number of the resource type.

1 3. The system of claim 1 wherein the fabrication tool
2 provides a plurality of services compliant to a 300mm
3 semiconductor equipment and material international (SEMI)
4 standard.

1 4. The system of claim 1 wherein the carrier identity is
2 acquired from an operator or an automated dispatch system, and
3 the required number of the resource type corresponding to the
4 carrier is acquired from a manufacturing execution system.

1 5. The system of claim 4 wherein the material transport
2 system further sends an advisory to the operator or the automated
3 dispatch system if the available number of the resource type is
4 less than the required number of the resource type.

1 6. The system of claim 1 wherein the resource type
2 comprises a control job space and a process job space.

1 7. The system of claim 6 wherein the material transport
2 system further sends an advisory to an operator or an automated
3 dispatch system if the available number of the resource type is
4 less than the required number of the resource type.

1 8. The system of claim 7 wherein the carrier identity is
2 acquired from an operator or an automated dispatch system, and
3 the required number of the resource type corresponding to the
4 carrier is acquired from a manufacturing execution system.

1 9. The system of claim 1 wherein the resource type
2 comprises a control job space, a process job space and an
3 internal buffer space.

1 10. The system of claim 9 wherein the material transport
2 system further sends an advisory to an operator or an automated
3 dispatch system if the available number of the resource type is
4 less than the required number of the resource type.

1 11. The system of claim 10 wherein the carrier identity
2 is acquired from an operator or an automated dispatch system,

Client's ref.: TSMC2003-0862/PE:SimonLu
Our ref.: 0503-A30160-USf/Jonah/Kevin

3 and the required number of the resource type corresponding to
4 the carrier is acquired from a manufacturing execution system.

1 12. A method of carrier transport traffic management, the
2 method comprising using a computer to perform the steps of:

3 receiving an available number of a resource type
4 corresponding to a fabrication tool from a host
5 computer;

6 acquiring a carrier identity corresponding to a carrier;
7 acquiring a required number of the resource type
8 corresponding to the carrier identity; and

9 issuing a load command to an automated material handling
10 system (AMHS) to transport the carrier to the
11 fabrication tool if the available number of the
12 resource type exceeds or equals to the required
13 number of the resource type.

1 13. The method of claim 12 further comprising a step of
2 sending an advisory to an operator or an automated dispatch
3 system if the available number of the resource type is less than
4 the required number of the resource type.

1 14. The method of claim 12 wherein the fabrication tool
2 provides a plurality of services compliant to a 300mm
3 semiconductor equipment and material international (SEMI)
4 standard.

1 15. The method of claim 12 wherein the carrier identity
2 is acquired from an operator or an automated dispatch system,
3 and the required number of the resource type corresponding to
4 the carrier is acquired from a manufacturing execution system.

5 16. The method of claim 15 further comprising a step of
6 sending an advisory to the operator or the automated dispatch
7 system if the available number of the resource type is less than
8 the required number of the resource type.

1 17. The method of claim 12 wherein the resource type
2 comprises a control job space and a process job space.

1 18. The method of claim 17 further comprising a step of
2 sending an advisory to an operator or an automated dispatch
3 system if the available number of the resource type is less than
4 the required number of the resource type.

1 19. The method of claim 18 wherein the carrier identity
2 is acquired from an operator or an automated dispatch system,
3 and the required number of the resource type corresponding to
4 the carrier is acquired from a manufacturing execution system.

1 20. The method of claim 12 wherein the resource type
2 comprises a control job space, a process job space and an
3 internal buffer space.

1 21. The method of claim 20 further comprising a step of
2 sending an advisory to an operator or an automated dispatch
3 system if the available number of the resource type is less than
4 the required number of the resource type.

1 22. The method of claim 21 wherein the carrier identity
2 is acquired from an operator or an automated dispatch system,
3 and the required number of the resource type corresponding to
4 the carrier is acquired from a manufacturing execution system.

5 23. A machine-readable storage medium for storing a
6 computer program which when executed performs a method of

Client's ref.: TSMC2003-0862/PE:SimonLu
Our ref.: 0503-A30160-USf/Jonah/Kevin

7 carrier transport traffic management, the method comprising the
8 steps of:

9 receiving an available number of a resource type
10 corresponding to a fabrication tool from a host

11 computer;

12 acquiring a carrier identity corresponding to a carrier;

13 acquiring a required number of the resource type

14 corresponding to the carrier identity; and

15 issuing a load command to an automated material handling

16 system (AMHS) to transport the carrier to the

17 fabrication tool if the available number of the

18 resource type exceeds or equals to the required

19 number of the resource type..

20 24. The machine-readable storage medium of claim 23,

21 wherein the method further comprises a step of sending an

22 advisory to an operator or an automated dispatch system if the

23 available number of the resource type is less than the required

24 number of the resource type.

1 25. The computer-readable storage medium of claim 23
2 wherein the fabrication tool provides a plurality of services
3 compliant to a 300mm semiconductor equipment and material
4 international (SEMI) standard.

1 26. The computer-readable storage medium of claim 23
2 wherein the carrier identity is acquired from an operator or an
3 automated dispatch system, and the required number of the
4 resource type corresponding to the carrier is acquired from a
5 manufacturing execution system.

1 27. The computer-readable storage medium of claim 26,
2 wherein the method further comprises a step of sending an
3 advisory to the operator or the automated dispatch system if the
4 available number of the resource type is less than the required
5 number of the resource type.

1 28. The computer-readable storage medium of claim 23
2 wherein the resource type comprises a control job space and a
3 process job space.

1 29. The computer-readable storage medium of claim 28,
2 wherein the method further comprises a step of sending an
3 advisory to an operator or an automated dispatch system if the
4 available number of the resource type is less than the required
5 number of the resource type.

1 30. The computer-readable storage medium of claim 29
2 wherein the carrier identity is acquired from an operator or an
3 automated dispatch system, and the required number of the
4 resource type corresponding to the carrier is acquired from a
5 manufacturing execution system.

1 31. The computer-readable storage medium of claim 23
2 wherein the resource type comprises a control job space, a
3 process job space and an internal buffer space.

1 32. The computer-readable storage medium of claim 31,
2 wherein the method further comprises a step of sending an
3 advisory to an operator or an automated dispatch system if the
4 available number of the resource type is less than the required
5 number of the resource type.

Client's ref.: TSMC2003-0862/PE:SimonLu
Our ref.: 0503-A30160-USf/Jonah/Kevin

1 33. The computer-readable storage medium of claim 32
2 wherein the carrier identity is acquired from an operator or an
3 automated dispatch system, and the required number of the
4 resource type corresponding to the carrier is acquired from a
5 manufacturing execution system.